

Puerto Rico Bridge Initiative

Executive Summary of Project for BIP and BTOP:

The Commonwealth of Puerto Rico suffers from very slow and very expensive access to the mainland/worldwide peering networks that support the Internet. The Puerto Rico Bridge Initiative (PRBI) proposes an innovative, fast-acting strategy which will provide the islands with middle mile speeds and capacity comparable to the mainland. The PRBI strategy will close the vast digital divide in the underserved service areas of Puerto Rico, including its adjacent islands of Vieques and Culebra. Pursuant to the grant opportunities provided by the Broadband Technology Opportunities Program (BTOP) as directed by the American Recovery and Reinvestment Act (ARRA) of 2009, this project will create an undersea and terrestrial multi-gigabit fiber optic bridge and associated peering network that will be available to all ISPs serving Puerto Rico. PRBI will provide fast, affordable broadband connectivity to the national/worldwide Internet backbone networks.

PROBLEM AND NEED ADDRESSED

Puerto Rico's digital divide is deep. Compared with service in the mainland, broadband Internet service in Puerto Rico is: (a) 60% more expensive, as local ISPs pay 400% more for their backbone connectivity to the mainland; (b) 78% slower than the national median; and (c) less accessible and affordable, as less than 33% of households are subscribers.

Puerto Rico is a victim of the basic economic principals of supply and demand. Due to the limited supply of undersea fiber optic cables connecting Puerto Rico to the mainland, the cost associated with these cables is very high, driving up the cost of backbone connectivity. In addition, Puerto Rico's mountainous tropical topography with high elevations, steep hills, valleys and thick vegetation, result in very high costs for the deployment of last mile infrastructure.

This project is essential to make broadband service accessible and affordable to US citizens in Puerto Rico, nearly half of whom live below the poverty line. Puerto Rico's 3.8 million residents live in 1.26 million households. There are 47,340 business establishments and 2,233 community anchor institutions on the island, including 1,619 schools, 33 universities, and 269 hospitals. The median family income is one third of the national median family income, and is half of Mississippi's, the poorest state in the nation. Over 58% of children in Puerto Rico live in poverty. In the offshore island of Vieques, this number climbs to 81%.

High-speed broadband access and connectivity are vital for economic growth, job creation, global competitiveness, world-class education, innovation and creativity. The PRBI is designed to bring Puerto Rico to a level comparable to the mainland, in terms of affordability and accessibility to fast broadband service.

OVERALL APPROACH TO ADDRESS THE NEED

To address this problem, Critical Hub Networks proposes to create a “bridge” linking Puerto Rico to the Network Access Point of the Americas (“NAP”) in Miami, Florida via a 10 Gigabit undersea fiber optic cable. This “bridge” would serve several purposes:

- Provide backhaul to the Internet backbone, reducing the backhaul costs nearly 90%.
- Establish local peering in Puerto Rico, to keep Puerto Rico-bound traffic within Puerto Rico
- Establish peering between the PRBI and Content & Network Providers, improving connectivity to such content and reducing the associated transit costs.
- Bring broadband services to unserved and underserved areas of Puerto Rico through the expansion of Puerto Rico ISP broadband networks, and the reduction in end-user broadband fees.

Critical Hub has obtained the concurrence of 85% of local independent ISPs in Puerto Rico, who are excited about the strategy and the opportunities that it will create for all. PRBI-supporting ISPs have agreed to provide a discount for high speed broadband to educational institutions, public safety and health care providers. Grant funding of the PRBI under the National Telecommunications and Information Administration's (NTIA) Broadband Technology Opportunities Program (BTOP) will:

- Reduce end users broadband fees
- Facilitate the expansion of all local ISP broadband networks, increasing broadband availability in unserved areas and communities
- Provide a 25% discount to all educational, health and public safety service providers
- Improve speed & quality of access to bandwidth-demanding content through improved interconnectivity of networks within Puerto Rico, as well as at the Internet backbone
- Facilitate the FCC objectives of network openness, non-discrimination and interconnection

The PRBI project is not intended to generate any profits for Critical Hub. All PRBI fees are solely based on the recovery of costs to ensure the long-term sustainability of the project. Critical Hub will act as the managing and operating entity of the PRBI. Governance of the project will come from the PRBI Steering Committee, an 8-member panel composed of local government, community anchor institution and non profit representatives, as well as ISP representatives. The benefits of the PRBI to Critical Hub are the same benefits that all PRBI-connected ISPs will receive - reduced backhaul to the Internet backbone, local peering & network peering. These benefits will permit the

expansion of Critical Hub's broadband service network and enhance its service offering with increased speeds and lower pricing. Any profits generated by PRBI will be used to further the goals of the project.

AREA TO BE SERVED

PRBI will provide middle mile services to all 78 municipalities in the Commonwealth of Puerto Rico, including the islands of Vieques and Culebra. Sixteen interconnection points will be established throughout Puerto Rico, the majority in rural, underserved communities.

QUALIFICATION OF CRITICAL HUB/CARIBE NET

Critical Hub Networks, Inc. is the owner & operator of Caribe.Net, Puerto Rico's first Internet Service Provider (ISP). With over 15 years of experience in the design, implementation, operations and management of ISP networks in Puerto Rico, Critical Hub Networks has the experience and capabilities required to carry out the Puerto Rico Bridge Initiative.

JOBS TO BE CREATED

In the short-term, the project would create approximately 54 direct jobs for professionals who would participate in the three-year project. Based on the Puerto Rico Planning Board's multiplier estimate, these direct jobs would in turn create 123 indirect and induced jobs, yielding a total of 177 direct, indirect and induced jobs.

More importantly, in the medium- and long-term, the project would increase the competitiveness of Puerto Rico in the global economy. The availability of reliable, fast, and affordable broadband service throughout the island would induce a substantial number of new businesses and investments opportunities, which in turn would generate additional jobs as a secondary effect and lay the foundation for Puerto Rico's future economic growth.

OVERALL COST OF THE PROJECT

The Puerto Rico Bridge Initiative overall infrastructure cost is \$33,095,005. Critical Hub Networks, [REDACTED]

[REDACTED] will contribute \$6,718,092, or a total of 20%, to the PRBI project. The PRBI is seeking \$26,376,913 in funding for the project.